



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|--------------------------|------------------|
| 10/508,945 | 10/01/2004 | Sumie Suda | 259727US0XPCT | 7750 |
| 22850 7590 02/13/2007 OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314 | | | EXAMINER YEE, DEBORAH | |
| | | | ART UNIT 1742 | PAPER NUMBER |
| SHORTENED STATUTORY PERIOD OF RESPONSE | | MAIL DATE | DELIVERY MODE | |
| 3 MONTHS | | 02/13/2007 | PAPER | |

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/508,945

Applicant(s)

SUDA ET AL.

Examiner

Deborah Yee

Art Unit

1742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 January 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11-42 is/are pending in the application.
- 4a) Of the above claim(s) 15-42 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 11-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 October 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date See Continuation Sheet.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Group I, claims 11-14, in the reply filed on January 31, 2007 is acknowledged. The traversal is on the ground(s) that the Office has not shown that a burden exists in searching the entire application. Moreover, the International Preliminary Examination Report did not require a restriction. This is not found persuasive because there would be a serious burden on the examiner because the inventions require a different field of search because of their recognized divergent subject matter. Note group I is directed to a steel wire, classified in 428/ 606 and 148/320 whereas group II is directed to a hard drawn spring which can have (R-) – (R+) at 500MPa or less, maximum roughness Ry of 10 microns or less, or D/d at 9.0 or less and can be made by two different processes, shot peening or nitriding , classified in 148/318, 908, 267/+ , and 72/+. Also although International Preliminary Examination did not require a restriction, note the applicant's invention is presented in two Japanese applications rather than one.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 1742

3. Claims 11, 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aoki et al (US Patent 6,224,686).

4. Aoki on lines 33-50 in column 2 discloses a steel wire having a composition with constituents whose wt% ranges overlap those recited by the claims. Also Aoki steel has a density wherein carbide larger than $0.05\ \mu\text{m}$ in diameter is no more than 5 pieces/ μm^2 which would overlap with applicant's density wherein carbide larger than $0.1\ \mu\text{m}$ in diameter is not more than 5 particles/ $100\ \mu\text{m}^2$ (equivalent to 0.05 particles/ μm^2). Note that the overlap in range limitations establishes a prima facie case of obviousness because it would be obvious for one skilled in the art to select the claimed range limitations over the broader disclosure of the prior art since the prior art teaches the same utility (spring) and similar properties of sag resistance and fatigue strength, see MPEP 2144.05.

5. Claims 11,13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto et al (US Patent 5, 904,787) cited by applicant in IDS dated June 7, 2005.

6. Matsumoto steel wires A, B D in Table I in column 4 meet the compositional limitation of claim 11, and in Table 5 of column 5 discloses a carbide density where <1 carbide having a diameter of $0.05\ \mu\text{m}$ or more per μm^2 which overlaps and suggest the carbide density limitation of claim 11 wherein carbide larger than $0.1\ \mu\text{m}$ in diameter is not more than 5 particles/ $100\ \mu\text{m}^2$ (equivalent to 0.05 particles/ μm^2). Note that the overlap in range limitations establishes a prima facie case of obviousness because it would be obvious for one skilled in the art to select the claimed range limitations over

Art Unit: 1742

the broader disclosure of the prior art since the prior art teaches the same utility (spring) and similar formability properties, see MPEP 2144.05.

6. Matsumoto in claim 3 teaches 0.05 to 0.5% Mo, which overlaps and therefore suggest the 0.03 or less Mo recited by claims 13 and 14.

7. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Aoki et al (US Patent 6,224,686) or Matsumoto et al (US Patent 5,904,787) as applied to claims 11,13 and 14 above, and further in view of Japanese patent 405320827.

8. Aoki and Matsumoto steel closely meet the claimed composition except fails to include Ni as an alloying constituent. JP'827 in paragraph [0018] teaches an analogous steel wire alloy which includes 0.1 to 2% Ni to further enhance hardenability and toughness. Since such properties are desired and sought for Aoki and Matsumoto steel wire, then it would be an obvious modification for one skilled in the art to further incorporate small amounts of Ni to enhance steel wire properties and produce no more than the known and expected effect from such an addition.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Deborah Yee whose telephone number is 571-27211253. The examiner can normally be reached on Monday-Friday 6:00am-2:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1742

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Deborah Yee
Primary Examiner
Art Unit 1742

dy

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :10-01-04;6-07-05;12-27-06;1-31-07.